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Amendments to the Claims

Please cancel Claims 4 and 32. Please amend Claims 1, 26 and 46. Please add new Claims 47 and 48. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently Amended) A method of measuring ~~the speed of~~ the speed of a marine vessel with a speed sensor having a known pulse rate comprising the steps of:

   substantially correcting non-linearities in the pulse rate so that the sensor produces a pulse stream output having a substantially constant pulse rate per unit of speed; reducing pulse-to-pulse variations of the pulse stream wherein the step of correcting includes performing a polynomial curve fit of an actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

2. (Original) The method of claim 1, wherein the step of frequency correcting includes standardizing the pulse stream output to have a pulse rate corresponding to a standard pulse rate.

3. (Cancelled)

4. (Cancelled)

5. (Original) The method of claim 1, wherein the step of correcting includes using a lookup table to based on an actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

6. (Original) The method of claim 1, wherein the step of correcting includes comparing the actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

7. (Original) The method of claim 1, wherein the step of correcting includes providing vessel speed information from a global positioning satellite to transform the actual pulse rate to a corrected pulse rate.

8. (Original) The method of claim 1, wherein the vessel is a motor vessel, and the step of correcting includes providing engine speed to transform the actual pulse rate to a corrected pulse rate.

9. (Original) The method of claim 1, wherein the sensor is a paddlewheel sensor, and the step of reducing includes counting complete revolutions of the paddlewheel.

10. (Original) The method of claim 9, wherein a range of the last 1-40 revolutions counted are used in the step of reducing.

11. (Original) The method of claim 9, wherein the step of reducing includes clipping output data associated with the pulse rate.

12. (Original) The method of claim 11, wherein the clipping includes discarding paddlewheel interpulse times that exceed maximum limits based on the maximum acceleration and deceleration of the vessel.

13. (Original) The method of claim 12, wherein the step of reducing includes averaging the pulse rate over a fixed time period.

14. (Original) The method of claim 12, wherein the vessel is a motor vessel, and the step of reducing includes providing engine speed as a function of time.

15. (Previously presented) The method of claim 12, wherein the step of reducing includes detecting changes in the vessel's acceleration and deceleration and adjusting the maximum limits to correspond to the changes in the vessel's acceleration and deceleration.

16. (Original) The method of claim 12, wherein the limits are implemented in a look-up table.

17. (Previously presented) A method for providing speed signals linearly proportional to the speed of a marine vessel through water comprising:

generating the speed signals in the form of electrical pulses at a rate which is generally constant per distance traveled by the vessel over a specified time period; correcting for any variations in the rate by processing the signals in accordance with an algorithm stored in a memory; and further comprising performing a polynomial curve fit of an actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

18. (Original) The method of claim 17 wherein the step of correcting includes discarding interpulse times that exceed maximum limits based on the maximum acceleration and deceleration of the vessel.

19. (Original) The method of claim 18 further comprising detecting changes in the vessel's acceleration and deceleration and adjusting the maximum limits to correspond to the changes in the vessel's acceleration and deceleration.

20. (Cancelled)

21. (Previously presented) The method of claim 17, further comprising standardizing the rate of the electrical pulses to a standard pulse rate.

22-25 (Cancelled)

26. (Currently amended) A correction circuit for a paddlewheel speed sensor producing a speed signal with a known pulse rate comprising:

a signal processor for processing the speed signal;

a memory for storing an algorithm, the algorithm substantially correcting non-linearities in the pulse rate to produce a pulse stream having a constant pulse rate, and reducing pulse-to-pulse variations; and wherein ~~the speed of~~ correcting includes using at least one polynomial curve of the actual pulse rate, performing a polynomial curve fit to transform the actual pulse rate into a corrected speed by comparing the polynomial curve of the actual pulse rate versus true speed of the vessel.

27. (Original) The circuit of claim 26, wherein the correction circuit standardizes the pulse stream with a pulse rate corresponding to a standard pulse rate.

28. (Previously presented) A method of correcting a sensed speed of a marine vessel, comprising:

standardizing an actual pulse rate of the vessel to a standard pulse rate; and wherein the step of standardizing includes using at least one polynomial curve of the actual pulse rate, performing a polynomial curve fit to transform the actual pulse rate into a corrected speed by comparing the polynomial curve of the actual pulse rate versus true speed of the vessel.

29. (Cancelled)

30. (Previously presented) The method of claim 28, wherein one polynomial curve is for low speeds and another polynomial curve is for high speeds.

31. (Previously presented) The method of claim 28, wherein the polynomial curves are joined at a predefined speed.

32. (Cancelled)

33. (Original) The method of claim 28, wherein the step of standardizing includes using a lookup table to based on the actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

34. (Original) The method of claim 28, wherein the standard pulse rate is 5.555 Hz per knot.

35-45 (Cancelled)

46. (Currently amended) A speed sensor for detecting the speed of a marine vessel, comprising:

a circuit for correcting non-linearities associated with the speed sensor; and driver means for displaying a corrected speed of the marine vessel; and wherein ~~the speed of~~ correcting includes using at least one polynomial curve of the actual pulse rate, performing a polynomial curve fit to transform the actual pulse rate into a corrected speed by comparing the polynomial curve of the actual pulse rate versus true speed of the vessel.

47. (New) A method of measuring the speed of a marine vessel with a speed sensor having a known pulse rate comprising the steps of:

substantially correcting non-linearities in the pulse rate so that the sensor produces a pulse stream output having a substantially constant pulse rate per unit of speed; and reducing pulse-to-pulse variations of the pulse stream, wherein the step of correcting includes performing a linear piecewise approximation to an actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.

48. (New) A method of correcting a sensed speed of a marine vessel, comprising: standardizing an actual pulse rate of the vessel to a standard pulse rate, wherein the step of standardizing includes performing a linear piecewise approximation to the actual pulse rate of the sensor versus the true speed of the vessel to transform the actual pulse rate to a corrected pulse rate.